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EXAMINER

ANYA, CHARLES E

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/723,959	<b>Applicant(s)</b> LADD ET AL.	
	<b>Examiner</b> Charles E. Anya	<b>Art Unit</b> 2194	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3/ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11/24/08.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/13/06; 3/20/07</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Claims 1-45 are pending in this application.

#### ***Specification***

2. The cross references related to this application cited in the specification must be updated (i.e. update the relevant status, with PTO serial numbers or patent numbers where appropriate, on page 11, paragraph 0125). The entire specification should be so revised.

#### ***Claim Objections***

3. **Claims 1-45 are objected to because of the following informalities:**

Abbreviations are used in most of the independent claims, however the full meaning of the abbreviated words are not included in the claims. For instance the abbreviations (API, CPE, DVR and MSO) are used through out the claims without description of full meaning of these abbreviations. Abbreviations are allowed in claims, however it advisable to define the abbreviation before using it.

For purpose of this office action the Examiner interprets for example, API as Application programming interface, CPE as Consumer Premise Equipment, DVR as Digital Video Recorder and MSO as Multimedia Specific Operator.

Claims 1-45 are replete with inconsistent terms. For instance “said at least one option” on line 6 of claim 1, “said registry” on line 3 of claim 2 and “said application” on line 9 of claim 12 and “said application” on line 7 of claim 43.

Although the terms are understandable it is advisable and a good practice to make terms used in claims consistent.

Claim 29 appears to include typographical error. Specifically, “Claim 1” on line 1 of claim 29 seems to have been used in error.

For the purpose of this office action the Examiner would replace “Claim 1” with “Claim 28”.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**4. Claims 9, 23-26, 31-33 and 34-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

**The following terms lack antecedent basis:**

- i. “said act of making a plurality of calls” on line 2 of claim 9.
- ii. “the middleware” on line 6 of claims 23 and 26.
- iii. “said parameters” on line 4 of claims 31.
- iv. “said at least one software application” on line 8 of claim 34.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**5. Claim 38 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Pat. No. 7,068,597 B1 issued to Fijolek et al.**

6. As to claim 38, Fijolek teaches a Consumer Premises Equipment (CPE) for use in a content-based network (figure 5), said CPE having an application-accessible hardware registry database comprising a plurality of records each with a plurality of fields (“...first field...second field...third field...”) relating to one or more of a plurality of hardware options (“...registered CM...”) (Database 150 Col. 17 Ln. 27 – 55, Col. 23 Ln. 50 – 67, Col. 24 Ln. 1 – 31, Col. 25 Ln. 35 – 51).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**7. Claims 1, 8-11, 13-18, 22 and 30-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. No. 2002/0174433 A1 to Baumgartner et al. in view of U.S. Pub. No. 2002/0038358 A1 to Sweat, III et al.**

8. As to claim 1, Baumgartner teaches a method of operating client equipment (User Equipment 122) in operative communication with a content-based network (figure 1), said client equipment comprising at least at least one hardware option (“...type...” page 5 paragraphs 0065/0067, “...PVR functionality...” page 12 paragraph 0117) and at least one application running on said client equipment (“...interactive television application...” page 3 paragraph 0045, “...IPG 502...” page 8 paragraph 0081, IPG 904 page 9 paragraphs 0089/0091), the method comprising:

providing at least one Application Programming Interface (API) adapted to interface with said at least one hardware option (PVR Extensions 504/PVR APIs 506 page 4 paragraphs 0058-0060, page 5 paragraphs 0065-0067);

starting said at least one application (“...communication between IPG 502... and the PVR device...” page 8 paragraph 0081, IPG 904 page 9 paragraphs 0089/0091);  
and

selectively controlling said at least one hardware option using said application via said API (Step 608 page 5 paragraphs 0067/0071).

Baumgartner is silent with reference to discovering said at least one hardware option and said at least one API using said application.

Sweat, III teaches discovering said at least one hardware option and said at least one API using said application (First Module 132 page 12 paragraphs 0131/0132/0133).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Baumgartner with the teaching of Sweat, III because the teaching of Sweat, III would improve the system of Baumgartner by providing a technique for searching/querying a data store for information/data that matches a requested information/data.

9. As to claim 8, Baumgartner teaches a method of operating Consumer Premise equipment (CPE) within a content-based network, said CPE comprising a plurality of optional hardware features (“...type (model, manufacturer, etc)...” page 5 paragraph 0065, “...PVR functionality...” page 12 paragraph 0117), middleware adapted to communicate with said hardware features via a plurality of Application Programming Interfaces (APIs) (PVR Extensions 504/PVR APIs 506 page 4 paragraphs 0058-0060, page 5 paragraphs 0065-0067), and the method comprising:

disposing an application onto said CPE (“...interactive television application...” page 3 paragraph 0045, “...IPG 502...” page 8 paragraph 0081, IPG 904 page 9 paragraphs 0089/0091); and

running said application to:

(i) discover said plurality of APIs (“...determine which of the vendor-specific APIs...” page 5 paragraph 0065);

Baumgartner is silent with reference to a hardware registry having a plurality of entries associated therewith and relating to respective ones of said hardware options and (i) discover said hardware registry, said entries and said plurality of APIs.

Sweat, III teaches a hardware registry having a plurality of entries associated therewith and relating to respective ones of said hardware options (“...BerkelyDB file...” pages 11/12 paragraphs 0131/0132) and (i) discover said hardware registry, said entries and said plurality of APIs (First Module 132 page 12 paragraphs 0131/0132/0133) and (ii) access at least one of said hardware features via at least one of said APIs (“...analyzes the BereklyDB file...to match...” page 12 paragraph 0132).

10. As to claim 9, Sweat, III teaches the method of claim 8, wherein said middleware comprises a trusted application rendered in an object-oriented language (“...user authentication...” page 16 paragraph 0169), and making a plurality of calls comprises making calls to objects of said middleware adapted to particularly access said hardware registry (First Module 132 page 12 paragraphs 0131/0132).

11. As to claim 10, Baumgartner teaches the method of claim 8, wherein said act of disposing comprises providing retail CPE having said application already installed thereon (“...interactive television application...” page 3 paragraph 0045, “...IPG 502...” page 8 paragraph 0081, IPG 904 page 9 paragraphs 0089/0091).



12. As to claim 11, Baumgartner teaches the method of claim 8, further comprising controlling, via said application, said at least one hardware feature (Step 608 page 5 paragraph 0067).

13. As to claim 13, Baumgartner teaches an apparatus adapted for operation within a cable network, said apparatus comprising:

- a processor (figures 1/2 User Equipment 122);

- a storage device operatively coupled to said processor (figure 3 Set-Top Box 302);

- at least one software application adapted to run on said processor (“...interactive television application...” page 3 paragraph 0045, “...IPG 502...” page 8 paragraph 0081, IPG 904 page 9 paragraphs 0089/0091).

Baumgartner is silent with reference to first software running on said processor and adapted to control at least one function within said apparatus; and

- wherein said first software is configured to:

- (a) maintain a registry of hardware options within said apparatus including storing data relating to said options in said storage device and (b) provide access to said hardware options to said at least one software application via a plurality of software interfaces.

Sweat, III teaches first software running on said processor and adapted to control at least one function within said apparatus (First Module 132 page 12 paragraphs 0131/0132); and

wherein said first software is configured to:

(a) maintain a registry of hardware options within said apparatus including storing data relating to said options in said storage device (“...BerkelyDB file...” pages 11/12 paragraphs 0131/0132) and (b) provide access to said hardware options to said at least one software application (“...analyzes the BerkelyDB file...to match...” page 12 paragraph 0132).

14. As to claim 14, Baumgartner teaches the apparatus of claim 13, further comprising a network interface operatively coupled to said processor (figures 1/2); **while** Sweat, III teaches said first software is further adapted to communicate with an external entity via said plurality of software interface (RNS Request Server 32 page 12 paragraph 0132).

15. As to claim 15, Baumgartner teaches the apparatus of claim 13, wherein said processor comprises an embedded processor, and said storage device comprises an embedded memory (User Equipment 122 page 3 paragraphs 0046/0049).

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16. As to claim 16, Baumgartner teaches the apparatus of claim 13, wherein said storage device comprises a hard disk drive (HDD) (“...hard drive...” page 3 paragraph 0049).

17. As to claim 17, Baumgartner teaches the apparatus of claim 13, wherein said network comprises a multi-channel distribution network of the hybrid fiber coax (HFC) type (figures 1/2), and said at least one hardware option comprises Digital Video Recorder (DVR) functionality (“...type of PVR device...” page 5 paragraphs 0065/0067, “...PVR functionality...” page 12 paragraph 0117).

18. As to claim 18, Baumgartner teaches the apparatus of claim 17, wherein said DVR functionality further comprises Personal Video Recorder (PVR) functionality (“...type of PVR device...” page 5 paragraphs 0065/0067, “...PVR functionality...” page 12 paragraph 0117).

19. As to claim 22, Baumgartner teaches a method of operating a cable network having a plurality of client devices operatively coupled thereto (figures 1/2), the method comprising:

distributing at least one software application to each of said plurality of devices (“...programming modules that include PVR extensions 902...downloaded...” page 9 paragraph 0086);

providing at least one software interface within each of said plurality of devices, said software interfaces being configured to interface between said at least one software application and at least one of said plurality of optional hardware (PVR Extensions 504/PVR APIs 506 page 4 paragraphs 0058-0060, page 5 paragraphs 0065-0067);

running said at least one software application (“...interactive television application...” page 3 paragraph 0045, “...IPG 502...” page 8 paragraph 0081, IPG 904 page 9 paragraphs 0089/0091);

discovering software interface with said software application (“...determine which of the vendor-specific APIs...” page 5 paragraph 0065).

Baumgartner is silent with reference to providing at least one hardware registry within each of said devices, said hardware registry containing data relating to a plurality of optional hardware associated with respective ones of said devices; and

discovering said at least one registry and software interface with said application, and responsive to said discovering, controlling said at least one hardware option using said application and said at least one interface.

Sweat, III teaches providing at least one hardware registry within each of said devices, said hardware registry containing data relating to a plurality of optional hardware associated with respective ones of said devices (“...BerkelyDB file...” pages 11/12 paragraphs 0131/0132); and

discovering said at least one registry and software interface with said application, and responsive to said discovering, controlling said at least one hardware option using said application (First Module 132 page 12 paragraphs 0131/0132).

20. As to claim 30, Baumgartner teaches a method of conducting business via a cable network having a plurality of client devices operatively coupled thereto (figures 1/2), the method comprising:

distributing at least one software application to said plurality of client devices (“...programming modules that include PVR extensions 902...downloaded...” page 9 paragraph 0086);

running said at least one software application on said plurality of client devices (“...interactive television application...” page 3 paragraph 0045, “...IPG 502...” page 8 paragraph 0081, IPG 904 page 9 paragraphs 0089/0091);

said plurality of client devices each having software interfaces and discovering said software interfaces (PVR Extensions 504/PVR APIs 506 page 4 paragraphs 0058-0060, page 5 paragraphs 0065-0067).

Baumgartner is silent with reference to plurality of client devices each having at least one hardware registry containing data relating to a plurality of hardware features and discovering said at least one registry and software interfaces with said application, and responsive to said discovering, controlling at least one of said hardware features using said application.

Sweat, III teaches a plurality of devices each having at least one hardware registry containing data relating to a plurality of hardware features and software interfaces (“...BerkelyDB file...” pages 11/12 paragraphs 0131/0132) and discovering said at least one registry and software interfaces with said application (First Module 132 page 12 paragraphs 0131/0132), and responsive to said discovering, controlling at least one of said hardware features using said at least software application (First Module 132 page 12 paragraphs 0131/0132).

21. As to claim 31, Baumgartner teaches the method of claim 30, wherein said act of selectively distributing comprises:

distributing said at least software application to substantially all users of said network (“...programming modules that include PVR extensions 902...downloaded...” page 9 paragraph 0086); and

Sweat, III teaches selectively enabling only a subset of said users to utilize said at least software application in conjunction with said at least one hardware feature based on a parameters (“...user authentication...” page 16 paragraph 0169).

22. As to claim 32, Baumgartner teaches the method of claim 31, wherein said act of selectively enabling comprises selectively embedding information within said at least software application before distribution thereof (“...programming modules that include PVR extensions 902...downloaded...” page 9 paragraph 0086).

23. As to claim 33, Sweat, III teaches the method of claim 31, wherein said act of selectively enabling comprises configuring said at least software application such that it: (i) accesses information relating to the individual one(s) of said devices on which it is running (“...home page such as 180...” page 16 paragraph 0169); and (ii) returns said information to a network agent, wherein said network agent accesses a database to determine if said utilizing should be enabled (“...log in...” page 16 paragraph 0169).

24. As to claim 34, Baumgartner teaches a Digital Video Recorder (DVR)-enabled Consumer Premise equipment (CPE) for use in a content-based network, wherein said DVR functionality is provided according to the method (figure 1/2), comprising:

providing at least one software interface within said CPE, said at least one software interface being configured to interface between at least one application running on said CPE and said DVR hardware and discovering said software interface (PVR Extensions 504/PVR APIs 506/PVR page 4 paragraphs 0058-0060, page 5 paragraphs 0065-0067, Extensions 902/PVR APIs 906 page 9 paragraphs 0086/0087);

running said at least one application (“...interactive television application...” page 3 paragraph 0045, “...IPG 502...” page 8 paragraph 0081, IPG 904 page 9 paragraphs 0089/0091); and

Baumgartner is silent with reference to providing at least one hardware registry within said CPE, said hardware registry containing data relating to DVR hardware associated therewith; and discovering said at least one registry using said at least

application, responsive to said discovering, controlling said DVR hardware using said at least application.

Sweat, III teaches providing at least one hardware registry within said CPE, said hardware registry containing data relating to DVR hardware associated therewith (“...BerkelyDB file...” pages 11/12 paragraphs 0131/0132); and discovering said at least one registry using said at least application, responsive to said discovering, controlling said DVR hardware using said at least application, responsive to said discovering, controlling said DVR hardware using said application and said at least one interface (First Module 132 page 12 paragraphs 0131/0132).

25. As to claim 35, Baumgartner teaches the CPE of claim 34, wherein said at least one software interfaces comprise Application Programming Interfaces (APIs) (PVR Extensions 504/PVR APIs 506/PVR page 4 paragraphs 0058-0060, page 5 paragraphs 0065-0067, Extensions 902/PVR APIs 906 page 9 paragraphs 0086/0087).

**26. Claims 2-7, 12 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. No. 2002/0174433 A1 to Baumgartner et al. in view of U.S. Pub. No. 2002/0038358 A1 to Sweat, III et al. as applied to claim 1 above, and further in view of U.S. Pub. No. 2003/0229899 A1 to Thompson et al.**

27. As to claim 2, Sweat, III teaches the method of claim 1, including a hardware registry (“...BerkelyDB file...” pages 11/12 paragraphs 0131/0132); and disposing at



least one entry associated with said at least one hardware option within said hardware registry (“...registered... pages 11/12 paragraphs 0131/0132).

Sweat, III and Baumgartner are silent with reference to providing middleware having said at least one API.

Thompson teaches providing middleware having said at least one API (Middleware Software 1004 page 2 paragraph 0023).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Sweat, III and Baumgartner with the teaching of Thompson because the teaching of Thompson would improve the system of Sweat, III and Baumgartner by providing a layer of glue software that runs on top of set-top box operating systems to create a consistent environment to run application software over a wide variety of set top boxes.

28. As to claim 3, Sweat, III teaches the method of claim 2, wherein said act of discovering said at least one option comprises accessing said hardware registry using a software function (First Module 132 page 12 paragraphs 0131/0132).

29. As to claim 4, Baumgartner teaches the method of claim 3, wherein said content-based network comprises a multi-channel distribution network of the hybrid fiber coax (HFC) type (figures 1/2), said client equipment comprises a digital set-top box, and said act of selectively controlling said at least hardware option comprises providing Digital

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Video Recorder (DVR) functionality (“...type of PVR device...” page 5 paragraphs 0065/0067).

30. As to claim 5, Thompson teaches the method of claim 3, wherein said middleware is rendered in an object-oriented language (Middleware Software 1004 page 2 paragraph 0023), and **Sweat teaches** said software function comprises a hardware registry interface object (First Module 132 page 12 paragraphs 0131/0132).

31. As to claim 6, Sweat, III teaches the method of claim 3, wherein said at least one entry comprises a plurality of entries relating to respective ones of said hardware options (“...list of all users who have registered their corresponding DVR 37...” page 12 paragraphs 0131/0132), and said act of accessing comprises iteratively searching said hardware registry to discover each of said plurality of entries (“...match the serial number...” page 12 paragraph 0132).

32. As to claim 7, Sweat teaches the method of claim 6, wherein said plurality of entries relate to different hardware options of the same general type (“...list of serial numbers for all DVRs...” page 12 paragraph 0132), and said act of iteratively searching comprises using a name convention to selectively access individual ones of said different hardware options (“...serial number...” page 12 paragraph 0132).

33. As to claim 12, Baumgartner teaches a Consumer Premise equipment (CPE) adapted for use within a content-based network (figures 1/2), said CPE comprising:

a plurality of optional hardware features (“...type...” page 5 paragraphs 0065/0067, “...PVR functionality...” page 12 paragraph 0117);

a software application (“...interactive television application...” page 3 paragraph 0045, “...IPG 502...” page 8 paragraph 0081, IPG 904 page 9 paragraphs 0089/0091);

and

wherein said CPE is further adapted to:

run said software application (Step 608 page 5 paragraphs 0067/0071);

discover said plurality of APIs (“...determine which of the vendor-specific APIs...” page 5 paragraph 0065) and

selectively control said at least one hardware feature using said software application (Step 608 page 5 paragraphs 0067/0071).

Baumgartner silent with reference to a hardware registry having a plurality of entries associated therewith and relating to respective ones of said hardware options;

wherein said CPE is further adapted to:

discover said hardware registry, said plurality of entries and said plurality of APIs;  
and

access at least one of said hardware features via at least one of said APIs and middleware adapted to communicate with said software application and said hardware features via a plurality of Application Programming Interfaces (APIs).

Sweat, III teaches a hardware registry having a plurality of entries associated therewith and relating to respective ones of said hardware options (“...BerkelyDB file...” pages 11/12 paragraphs 0131/0132);

wherein said CPE is further adapted to:

discover said hardware registry, said plurality of entries and said plurality of APIs (First Module 132 page 12 paragraphs 0131/0132/0133); and

access at least one of said hardware features (“...analyzes the BereklyDB file...to match...” page 12 paragraph 0132).

Thompson teaches middleware adapted to communicate with said software application and said hardware features via a plurality of Application Programming Interfaces (APIs) (Middleware Software 1004 page 2 paragraph 0023).

34. As to claim 23, Baumgartner teaches a head-end apparatus for use in a cable network (figures 1/2), the head-end apparatus comprising:

at least one server having a software process running thereon, said software process being adapted to selectively download an application to at least one client device (“...programming modules that include PVR extensions 902...downloaded...” page 9 paragraph 0086).

Baumgartner is silent with reference to application configured to: detect and access records within a hardware registry disposed on said at least one client device and control at least one hardware feature associated with said device via one or more software interfaces associated with a middleware of said device.

Sweat, III teaches an application configured to:

detect and access records within a hardware registry disposed on said at least one client device (First Module 132 page 12 paragraphs 0131/0132/0133).

Thompson teaches controlling at least one hardware feature associated with said device via one or more software interfaces associated with a middleware of said device (Middleware Software 1004 page 2 paragraph 0023).

35. As to claim 24, Thompson teaches the apparatus of claim 23, wherein said application comprises a Digital Video Recorder (DVR)-enabled Java-based application (“...Java...” page 2 paragraph 0026), and **Sweat, III teaches** said at least one hardware feature comprises Personal Video Recorder (PVR) functionality resident on said at least one client device (“...type of PVR device...” page 5 paragraphs 0065/0067, “...PVR functionality...” page 12 paragraph 0117).

36. As to claim 25, Sweat, III teaches the apparatus of claim 23, wherein said control of said at least one hardware feature is initiated by the middleware of said device (Extensions 504/PVR APIs 506 page 4 paragraphs 0058-0060, page 5 paragraphs 0065-0067, “...type of PVR device...” page 5 paragraphs 0065/0067, “...PVR functionality...” page 12 paragraph 0117).

**37. Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. No. 2004/01034334 A1 to Ellis in view of U.S. Pub. No.**

**2002/0038358 A1 to Sweat, III et al. and further in view of U.S. Pub. No.**

**2003/0229899 A1 to Thompson et al.**

38. As to claim 19, Ellis teaches a fault-tolerant Consumer Premises Equipment (CPE) adapted for coupling to a cable network, said CPE having a monitor application running thereon (“...interactive television application...” page 12 paragraphs 0147-0149), said monitor application being adapted to

(i) detect at least one event relating to the operation of one or more software applications running thereon (“...conflict will arise...”, “...detects this type of conflict...” page 12 paragraphs 0147-0149);

(ii) selectively log data relating to said at least one event for subsequent use (Screen 298 page 12 paragraph 0149, Display 312 page 13 paragraphs 0160/0161);

(iii) control the operation of said CPE based at least in part on said at least one detected event (“...resolve such conflicts...”, “...resolution screen...” page 12 paragraphs 0147-0149, page 13 paragraphs 0152-0156).

Ellis is silent with reference to (iv) provide a hardware registry accessible by said one or more software applications whereby said one or more software applications can selectively access and control at least one optional hardware feature of said CPE via a plurality of software interfaces.

Sweat, III teaches a hardware registry accessible by said one or more software applications (First Module 132 page 12 paragraphs 0131/0132).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Ellis with the teaching of Sweat, III because the teaching of Sweat, III would improve the system of Ellis by providing a technique for searching/querying a data store for information/data that matches a requested information/data.

Thompson teaches one or more software applications that selectively access and control at least one optional hardware feature of said CPE via a plurality of software interfaces (Middleware Software 1004 page 2 paragraph 0023).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Sweat, III and Ellis with the teaching of Thompson because the teaching of Thompson would improve the system of Sweat, III and Ellis by providing a layer of glue software that runs on top of set-top box operating systems to create a consistent environment to run application software over a wide variety of set top boxes.

39. As to claim 20, Ellis teaches the CPE of Claim 19, wherein said monitor application is further adapted to communicate with an external entity (Screen 298 page 12 paragraph 0149), said external entity and said monitor application cooperating to selectively control the operation of said CPE (“...resolve such conflicts...”/“...resolution screen...” page 12 paragraphs 0147-0149, page 13 paragraphs 0152-0156).

40. As to claim 21, Ellis teaches the CPE of Claim 20, wherein said event comprises a resource depletion event (“...running time that will cause that content to overlap...” page 12 paragraph 0149), and said act of controlling the operation of said CPE comprises selectively suspending or destroying at least one of said software applications in order to mitigate said resource depletion (“...Seinfeld will be cancelled...”, “...reschedule the reminder fro Seinfeld...” page 13 paragraphs 0152-0153).

**41. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. No. 2003/0229899 A1 to Thompson et al. in view U.S. Pub. No. 2002/0038358 A1 to Sweat, III et al.**

42. As to claim 26, Thompson teaches a computer-readable media for use in a cable network, said computer-readable media comprising a storage medium adapted to store a computer program (ETV Application 1007) thereon, said computer program adapted to run on a client device (figure 1B page 2 paragraphs 0022/0023) and to:

control at least one hardware feature (Set Top Hardware 1001) associated with said client device via one or more software interfaces associated with a middleware of said client device (Middleware 1004 page 2 paragraph 0023).

Thompson is silent with reference to a computer program adapted to detect and access records within a hardware registry disposed on said client device.



Sweat, III teaches a computer program adapted to detect and access records within a hardware registry disposed on said client device (First Module 132 page 12 paragraphs 0131/0132).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Thompson with the teaching of Sweat, III because the teaching of Sweat, III would improve the system of Thompson by providing a technique for searching/querying a data store for information/data that matches a requested information/data.

43. As to claim 27, Thompson teaches the computer-readable medium of claim 26, wherein said storage medium comprises a hard disk drive (HDD) (Local Video Storage 1106 page 2 paragraph 0021).

**44. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. No. 2002/0174433 A1 to Baumgartner et al. in view U.S. Pub. No. 2004/0187152 A1 to Francis et al. and further in view of U.S. Pub. No. 2003/0229899 A1 to Thompson et al.**

45. As to claim 28, Baumgartner teaches a cable network, comprising:  
a plurality of client devices, said plurality of client devices each having at least one controllable hardware feature (figures 1/2); and

a head-end apparatus (figure 1/2) comprising at least one server having a software process running thereon, that downloads applications (“...downloaded...” page 9 paragraphs 0086/0087).

Baumgartner is silent with reference to a plurality of registries in operative communication with respective ones of said plurality of client devices, said plurality of registries each retaining information relating to said at least one controllable feature and applications configured to detect and access said information within said plurality of registries and middleware running on respective ones of said client devices, said middleware being adapted to interface with an application and said at least one controllable feature.

Francis teaches a plurality of registries in operative communication with respective ones of said plurality of client devices, said plurality of registries each retaining information relating to said at least one controllable feature (“...registry that is found at multiple locations...” page 11 paragraph 0118) and applications configured to detect and access said information within said plurality of registries (“...information identifying...” page 11 paragraph 0118).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Baumgartner with the teaching of Francis because the teaching of Francis would improve the system of Baumgartner by providing a technique for searching/querying a data store for information/data that matches a requested information/data

Thompson teaches middleware running on respective ones of said client devices, said middleware being adapted to interface with an application and said at least one controllable feature (Middleware Software 1004 page 2 paragraph 0023).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Francis and Baumgartner with the teaching of Thompson because the teaching of Thompson would improve the system of Francis and Baumgartner by providing a layer of glue software that runs on top of set-top box operating systems to create a consistent environment to run application software over a wide variety of set top boxes.

46. As to claim 29, Baumgartner teaches the network of claim 1, wherein said network comprises a multi-channel distribution network of the hybrid fiber coax (HFC) type (Figures 1/2).

**47. Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. No. 2002/0174433 A1 to Baumgartner et al. in view of U.S. Pub. No. 2002/0038358 A1 to Sweat, III et al. as applied to claim 34 above, and further in view of U.S. Pub. No. 2004/0003400 A1 to Carney et al.**

48. As to claim 36, Sweat, III and Baumgartner are silent with reference to the CPE of claim 34, wherein said at least one software interface is associated with OpenCable Application Platform (OCAP)-compliant middleware running on said CPE, and said

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application comprises a Java-based application adapted to make calls to objects within said middleware.

Carney teaches the CPE of claim 34, wherein said at least one software interface is associated with OpenCable Application Platform (OCAP)-compliant middleware running on said CPE (Set-Top Box Middleware 18 page 4 paragraph 0049, page 8 paragraph 0096), and said application comprises a Java-based application adapted to make calls to objects within said middleware (Application Client 14 page paragraph 0049, page 8 paragraph 0096).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Sweat, III and Baumgartner with the teaching of Carney because the teaching of Carney would improve the system of Sweat, III and Baumgartner by providing a layer of glue software that runs on top of set-top box operating systems to create a consistent environment to run application software over a wide variety of set top boxes (Carney page 14 paragraph 0222).

49. As to claim 37, Sweat, III teaches the CPE of claim 36, wherein said at least hardware registry comprises a database having records each with a plurality of fields and each relating to a specific one of a plurality of hardware options, said plurality of hardware options including said DVR hardware (“...BerkelyDB file...” pages 11/12 paragraphs 0131/0132).

**50. Claims 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 7,068,597 B1 issued to Fijolek et al. in view of U.S. Pub. No. 2002/0174433 A1 to Baumgartner et al.**

51. As to claim 39, Fijolek teaches the CPE of claim 38, wherein said fields comprise: (i) at least one field to identify the type or class of hardware (Table 7 "...Type..." Col. 24 Ln. 1 – 31); (ii) at least one field having parameters that are specific to the hardware ("...configuration file name..." Col. 25 Ln. 39 – 44).

Fijolek is silent with reference to at least one field having a reference to software interface that can be used to access and manipulate the relevant one(s) of said hardware.

Baumgartner teaches a reference to software interface that can be used to access and manipulate the relevant one(s) of said hardware ("...library of multiple vendor-specific APIs..." page 5 paragraphs 0065/0071).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Fijolek with the teaching of Baumgartner because the teaching of Baumgartner would improve the system of Fijolek by providing a collection of subroutines or classes containing code and data that provide services to independent programs.

52. As to claim 40, Fijolek teaches the CPE of claim 39, said fields further comprising at least one field to uniquely differentiate hardware of the same type (Table 7 “...Type...” Col. 24 Ln. 1 – 31).

**53. Claims 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. No. 2003/0229899 A1 to Thompson et al. in view of U.S. Pub. No. 2002/0038358 A1 to Sweat, III et al., and further in view of U.S. Pub. No. 2002/0174433 A1 to Baumgartner et al.**

54. As to claim 41, Thompson teaches a method of operating a consumer electronics device (Client 1000) having middleware (Middleware Software 1004) and a hard drive in data communication with said middleware (Local Video Storage 1106) (figures 1A/B), comprising:

providing an application adapted to run on said consumer electronics device and in conjunction with said middleware (ETV Application 1007 page 2 paragraph 0023-0026) and controlling said DVR functionality via said at least one API so as to record at least a portion of content streamed to said electronics device from an external source on said hard drive (“...operate on set top hardware 1001 page 2 paragraph 0023, “...video that is received from any of the video-on-demand server 1103 page 2 paragraph 0024).

Thompson is silent with reference to disposing a hardware registry having at least one Digital Video Recorder (DVR) functionality record disposed therein, said at

least one record further identifying at least one Application Programming Interface (API) for interface with said DVR functionality;

accessing said hardware registry using at least said application; and

Sweat, III teaches disposing a hardware registry having at least one Digital Video Recorder (DVR) functionality record disposed therein (“...BerkelyDB file...” pages 11/12 paragraphs 0131/0132), and accessing said hardware registry using at least said application (First Module/Second 132/134 page 12 paragraphs 0131/0132/0133).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Thompson with the teaching of Sweat, III because the teaching of Sweat, III would improve the system of Thompson by providing a technique for searching/querying a data store for information/data that matches a requested information/data.

Baumgartner teaches at least one record further identifying at least one Application Programming Interface (API) for interface with said DVR functionality (“...library of multiple vendor-specific APIs...” page 5 paragraphs 0065/0071).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Sweat, III and Thompson with the teaching of Baumgartner because the teaching of Baumgartner would improve the system of Sweat, III and Thompson by providing a collection of subroutines or classes containing code and data that provide services to independent programs.

55. As to claim 42, Sweat, III teaches the method of claim 41, wherein said act of accessing said hardware registry comprises (i) discovering said hardware registry (First Module/Second 132/134 page 12 paragraphs 0131/0132/0133); (ii) accessing said hardware registry to identify said at least one DVR record (First Module/Second 132/134 page 12 paragraphs 0131/0132/0133); and **Baumgartner teaches** (iii) accessing said at least one DVR record to identify said at least one API (“...library of multiple vendor-specific APIs...” page 5 paragraph 0065/0067).

56. As to claim 43, Thompson teaches a method of operating a cable network consumer premises device having middleware (Middleware Software 1004), and a hard drive in data communication with said middleware (Local Video Storage 1106) (figures 1A/B), the method comprising:

providing a DVR-based application adapted to run on said device and in conjunction with said middleware (ETV Application 1007 page 2 paragraph 0023-0026);  
and

selectively controlling said DVR functionality via said API so as to store at least a portion of first entertainment content provided to said device on said hard drive for subsequent use by a consumer (“...operate on set top hardware 1001 page 2 paragraph 0023, “...video that is received from any of the video-on-demand server 1103 page 2 paragraph 0024).

a hardware registry having a Digital Video Recorder (DVR) functionality record identifying an Application Programming Interface (API) for interface with said DVR



functionality and accessing said hardware registry using said application to identify said API.

Sweat, III teaches a hardware registry having a Digital Video Recorder (DVR) functionality (“...BerkelyDB file...” pages 11/12 paragraphs 0131/0132).

record identifying an Application Programming Interface (API) for interface with said DVR functionality and accessing library of APIs using said application to identify said API (“...library of multiple vendor-specific APIs...” page 5 paragraphs 0065/0071).

**57. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. No. 2003/0229899 A1 to Thompson et al. in view of U.S. Pub. No. 2002/0038358 A1 to Sweat, III et al., and further in view of U.S. Pub. No. 2002/0174433 A1 to Baumgartner et al. as applied to claim 43 above, and further in view U.S. Pub. No. 2004/0103434 A1 to Ellis.**

58. As to claim 44, Baumgartner, Sweat, III and Thompson are silent with reference to the method of claim 43, wherein said method further comprises simultaneously: storing a second at least portion of second entertainment content on said hard drive; and watching, via viewing apparatus operatively connected to said consumer premises device, third entertainment content.

Ellis teaches the method of claim 43, wherein said method further comprises simultaneously: storing a second at least portion of second entertainment content on said hard drive (Option 304 page 13 paragraph 0154); and watching, via viewing

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apparatus operatively connected to said consumer premises device, third entertainment content (Option 304 page 13 paragraph 0154).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Baumgartner, Sweat, III and Thompson with the teaching of Ellis because the teaching of Ellis would improve the system of Baumgartner, Sweat, III and Thompson by providing collections of interacting computational processes that may be executed concurrently and allowing users to record and watch entertainment contents at the same time.

**59. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. No. 2004/0003400 A1 to Carney et al. in view of U.S. Pat. No. 6,968,364 B1 issued to Wong et al. and further in view of U.S. Pub. No. 2002/0174433 A1 to Baumgartner et al.**

60. As to claim 45, Carney teaches a method of operating a cable network having an Multimedia specific Operator (MSO) and a plurality of Consumer Premise equipment (CPE) coupled thereto (Head End 22 page 4 paragraph 0051, page 8 paragraph 0092), the method comprising:

configuring said CPE with one or more non-standardized hardware options (Set-Top Box 16 page 4 paragraphs 0049,0051-0053);

operating an MSO application on said CPE (Application Client 14 page 4 paragraphs 0049/0052), said MSO application accessing said one or more non-

standardized options via said standardized interface (Middleware 18 page 4 paragraph 0049, page 8 paragraph 0096, page 10 paragraph 0130)

Carney is silent with reference to disposing entries relating to said one or more options within a hardware registry associated with said CPE, said entries having at least one standardized interface associated therewith.

Wong teaches disposing entries relating to said one or more non-standardized hardware options within a hardware registry associated with said CPE (User Profile Database 678 Col. 40 – 57, Col. 34 Ln. 30 – 48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system Carney with the teaching of Wong because the teaching of Wong would improve the system of Carney by providing an organized and structured collection of records or data that is stored in a computer system.

Baumgartner teaches entries having at least one standardized interface associated therewith (“...library of multiple vendor-specific APIs...” page 5 paragraphs 0065/0071).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system Wong and Carney with the teaching of Baumgartner because the teaching of Baumgartner would improve the system of Wong and Carney on by providing a collection of subroutines or classes containing code and data that provide services to independent programs.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pub. No. 2003/0204848 A1 to Cheng et al.: directed to managing record events.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E. Anya whose telephone number is 571-272-3757. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Charles E Anya/  
Examiner, Art Unit 2194

